

Patents and Selected Publications and Presentations

Patents

Flat Metal Conductor Principal Detector Element for NMR Analysis of a Sample

R. E. Gerald II, R. J. Klingler, and J. W. Rathke

U. S. Patent No. 6,469,507 B1, issued October 22, 2002

NMR Technology for *In Situ* Analyses of Coin Cells

R. E. Gerald II, J. Sanchez, R. J. Klingler, and J. W. Rathke

U. S. Patent 6,469,507 B1, issued October 22, 2002

Two Dimensional B1 Gradient NMR Imager

R. E. Gerald II, R. L. Greenblatt, and J. W. Rathke

Patent No. 6,538,444, issued March 25, 2003

Journal Articles, Books, and Book Chapters

Cobalt(I) Salt Formation in Hydroformylation Catalysis

J. W. Rathke, R. J. Klingler, M. J. Chen, R. E. Gerald II, and K. W. Kramarz

The Chemist **80**(1):9-12 (Summer 2003)

The Role of a Superconducting Seed Layer in the Structural and Transport Properties of $\text{EuBa}_2\text{Cu}_3\text{O}_{7-x}$ Films

Q. X. Jia, S. R. Foltyn, P. N. Arendt, H. Wang, J. L. MacManus-Driscoll, Y. Coulter, Y. Li, M. P. Maley, M. Hawley, K. Venkataraman, and V. A. Maroni

Applied Physics Letters, **8**, 7, 1388-1390 (August 2003)

Improving the Critical Current Density in Bi-2223 Wires Via a Reduction of the Secondary Phase Content

Y. B. Huang, X. Y. Cai, T. Holesinger, V. A. Maroni, D. Yu, R. Parella, M. Rupich, E. Hellstrom, M. Teplitsky, K. Venkataraman, A. Otto, and D. Larbalestier

IEEE Transactions on Applied Superconductivity, 13(2), 3038-3041, June 2003

Pulsed Laser Deposition of *c*-Axis Untilted YBCO Films on *c*-Axis Tilted ISD MgO-Buffered Metallic Substrates

M. Li, B. Ma, R. E. Koritala, B. L. Fisher, K. Venkataraman, V. A. Maroni, V. Vlasko-Vlasov, P. Berghuis, U. Welp, K. E. Gray, and U. Balachandran

Physica C **387**, 373-381 (2003)

Nondestructive Analysis of Phase Evolution and Microstructure Development in $\text{Ag}/(\text{Bi},\text{Pb})_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_x$ Composite Superconductor by 25 keV Transmission X-ray Diffraction

V. A. Maroni, K. Venkataraman, A. J. Kropf, C. U. Segre, Y. Huang, and G. N. Riley, Jr.

Physica C **382**, 21–26 (2002)

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RIDE'n RIPT—Ring Down Elimination in Rapid Imaging Pulse Trains

K. Woelk, P. Trautner, H. G. Niessen, and R. E. Gerald II

J. Magn. Reson. **159**, 207–212 (2002)

Abstracts and Proceedings Papers

NMR Studies of Confined Molecules in Porous Al₂O₃ Films

R. E. Gerald II, D. N. Sears, K. J. Ruscic, R. J. Klingler, and J. W. Rathke

Abstract, presented at 45th Rocky Mountain Conference on Analytical Chemistry,
Denver, CO, July 27-31, 2003

Direct Oxidation of Benzene to Phenol in Air over a Zeolite-Based Catalyst

N. B. Castagnola, C. L. Marshall, and A. J. Kropf

Abstract, presented at 2003 Spring Symposium of Catalysis Club of Chicago, Evanston,
IL, May 20, 2003

Bifunctional Catalysts for the Selective Catalytic Reduction of NO by Hydrocarbons

M. K. Neylon, M. J. Castagnola, A. J. Kropf, and C. L. Marshall

Presented at 2003 Spring Symposium of Catalysis Club of Chicago, Evanston, IL,
May 20, 2003

Papers Presented at Scientific Meetings

Direct Oxidation of Benzene to Phenol in Air over a Zeolite-Based Catalyst

N. B. Castagnola, C. L. Marshall, and A. J. Kropf

Presented at 18th North American Meeting of the North American Catalysis Society,
Cancun, Mexico, June 1-6, 2003

In-Situ X-Ray Absorption Spectroscopy of Electrochemically Induced Phase Changes in Lithium-Doped InSb

A. J. Kropf, C. S. Johnson, J. T. Vaughey, and M. M. Thackeray

Presented at the 12th Int. Conf. on X-Ray Absorption Fine-Structure Spectroscopy
(XAFS XII), Malmö, Sweden, June 22–27, 2003

XAFS Analysis of Layered Li_xNi_{0.5}Mn_{0.5}O₂ (0 < x ≤ 2) Electrodes for Lithium Batteries

A. J. Kropf, C. S. Johnson, J. T. Vaughey, and M. M. Thackeray

Presented at the 12th Int. Conf. on X-ray Absorption Fine-Structure Spectroscopy,
Malmö, Sweden, June 22–27, 2003

A Bent Silicon Crystal in the Laue Geometry to Resolve X-ray Fluorescence for X-ray Absorption Spectroscopy

A. J. Kropf, C. Karanfil, C. U. Segre, L. D. Chapman, and G. Bunker

Presented at the 12th Int. Conf. on X-Ray Absorption Fine-Structure Spectroscopy
(XAFS XII), Malmö, Sweden, June 22–27, 2003

(Co)MoS₂/Alumina Hydrotreating Catalysts: An EXAFS Study of the Chermisorption and Partial Oxidation with O₂ Using the Difference Method

A. J. Kropf, J. T. Miller, and C. L. Marshall

Presented at the 12th Int. Conf. on X-Ray Absorption Fine-Structure Spectroscopy

(XAFS XII), Malmö, Sweden, June 22–27, 2003

Sono Synthesis and Characterization of Nanophase Hydrodesulfurization Catalysts

D. Mahajan, M. J. Castagnola, C. L. Marshall, A. J. Kropf, M. Serban, and J. Hanson

Presented at 18th North American Catalysis Society Meeting, Cancun, Mexico, June 1–6, 2003

Desulphurization of Gasoline, Distillate, and Heavy Feeds to Meet the Environmental Needs of the 21st Century

C. L. Marshall

Presented at the 18th North Am. Catalysis Soc. Meeting, Cancun, Mexico, June 1–6, 2003

Bifunctional Catalysts for the Selective Catalytic Reduction of NO by Hydrocarbons

M. K. Neylon, M. J. Castagnola, A. J. Kropf, and C. L. Marshall

Presented at the North Am. Catal. Soc. 18th Annual Meeting, Cancun, Mexico, June 1–6, 2003

In Situ XAFS Analysis of the Temperature Programmed Reduction of Cu-ZSM-5

M. K. Neylon, C. L. Marshall, and A. J. Kropf

Presented at the 12th Int. Conf. on X-ray Absorption Fine-Structured Spectroscopy

XAFS Analysis of Layered $\text{Li}_x\text{Ni}_{0.5}\text{Mn}_{0.5}\text{O}_2$ ($0 < x \leq 2$) Electrodes for Lithium Batteries

A. J. Kropf, C. S. Johnson, J. T. Vaughey, and M. M. Thackeray

Presented at 12th Users' Meeting for the Advanced Photon Source, Argonne, IL, April 29–May 1, 2003

Toroid Cavity Detectors for Homogeneous Catalysis Studies in Supercritical Fluids

R. E. Gerald II, M. J. Chen, R. J. Klingler, and J. W. Rathke

Presented at the 44th Experimental Nuclear Magnetic Resonance Conf., Savannah, GA, March 30–April 4, 2003

NMR Technology for *In Situ* Analyses of Coin Cells

R. E. Gerald II, J. Sanchez, R. J. Klingler, and J. W. Rathke

Presented at the 5th IBA-HBC Yeager Memorial Symp., Waikoloa Beach, HI, January 7–10, 2003

High-Pressure NMR in Homogeneous Catalysis

R. J. Klingler, M. J. Chen, R. E. Gerald II, and J. W. Rathke

Presented at the Workshop on Selectivity in Catalysis, Argonne National Laboratory, Argonne, IL, December 3, 2002

Diffraction Space Mapping of Epitaxy, Strain, and Twinning in $\text{Mba}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films on SrTiO_3 (100) Substrates

K. Venkataraman, A. J. Kropf, C. U. Segre, Q. Jia, S. R. Folty, A. Goyal, A. K. Cochran, S. Chattopadhyay, and V. A. Maroni

Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002